

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings of claims in the application.

Claims Listing

Claims 1-72 (Canceled)

73. (Currently Amended) An apparatus for conducting electrophoresis therein, the apparatus comprising:

a body of separating gel;

a cathode electrically coupled to a first end of said body of separating gel; and

an anode comprising an electrochemically ionizable metal, wherein said anode is disposed in a semi-solid ion reservoir containing a buffer, wherein said semi-solid ion buffer reservoir is disposed at a second end of said body of separating gel and is electrically coupled to said body of separating gel, wherein said buffer comprises an amine and a Zwitter ion, wherein said buffer has a conductivity in the range of 30×10^{-5} (ohm⁻¹/cm) to 140×10^{-5} (ohm⁻¹/cm), and wherein said buffer inhibits the migration of ions of said electrochemically ionizable metal into said body of separating gel, during said electrophoresis.

74. (Currently Amended) The apparatus according to claim 73, wherein said cathode, said anode, said body of separating gel and said semi-solid ion buffer reservoir are disposed within a substantially closed cassette.

75. (Currently Amended) The apparatus according to claim 73, wherein said electrochemically ionizable metal of said anode comprises copper.

76. (Currently Amended) The apparatus according to claim 73, wherein said cathode comprises a metal selected from the group consisting of copper and aluminum.

77. (Canceled).

78. (Currently Amended) The apparatus according to claim 73, wherein the pK of said amine is lower than that of said Zwitter ion by about between 0.9 and 2 pH units.

79. (Currently Amended) The apparatus according to claim 73, wherein said buffer is selected from the group consisting of,

a combination of bis[2-hydroxyethyl]iminotris[hydroxymethyl]methane and N-tris[hydroxymethyl]methylglycine,

a combination of bis[2-hydroxyethyl]iminotris[hydroxymethyl]methane and N,N-bis[2-hydroxyethyl]glycine,

a combination of bis[2-hydroxyethyl]iminotris[hydroxymethyl]methane and Glycylglycine,

a combination of Tris and Glycine, and

a combination of amino methyl propanol and proline.

80. (Currently Amended) The apparatus according to claim 73, wherein said body of separating gel comprises polyacrylamide or agarose.

81. (Previously presented) The apparatus according to claim 73, wherein the ions of said electrochemically ionizable metal do not migrate into said body of separating gel during electrophoresis.

82. (Currently Amended) The apparatus according to claim 73, wherein said body of separating gel comprises at least one sample well.

83-92 (canceled)

93. (Previously presented) The apparatus of claim 73, wherein said Zwitter ion comprises a carboxyl group.

94. (New) The apparatus of claim 73, wherein the buffer has a concentration in the range of 50 mM to 300 mM.

95. (New) The apparatus of claim 73, wherein said body of separating gel further comprises a gel buffer comprising an amine and a Zwitter ion.

96. (New) The apparatus of claim 95, wherein said gel buffer has a conductivity in the range of 30×10^{-5} (ohm⁻¹/cm) to 140×10^{-5} (ohm⁻¹/cm).